

# CY2004 FEDERAL AVIATION PROGRAM AWARD NOMINATION NARRATIVE

## MANAGEMENT AND ADMINISTRATION

### GENERAL

During CY2004, the National Nuclear Security Administration/Nevada Site Office (NNSA/NSO) associated with its prime contracting partner, Bechtel Nevada (BN), had one of the best, most diverse and safest aviation programs within the Department of Energy (DOE).

The BN Remote Sensing Laboratory (RSL), Aviation Operations Section (AOS) began a series of professional development and process enhancement programs. The process began in January 2004 with Section reorganization to more clearly define roles and responsibilities and lines of authority. Mission critical functions were reviewed. Three goals drove the reorganization decisions:

- We sought to create a more efficient, more streamlined structure, eliminating unnecessary layers of supervision and duplication of service. One way we did that was by eliminating the Quality Assurance (QA) position at Remote Sensing Laboratory-Andrews AFB (RSL-A) and consolidated the QA task under the QA Supervisor at Remote Sensing Laboratory-Nellis AFB (RSL-N).
- We also looked for ways to foster greater synergy and collaboration between similar functions which led to enhanced communication and improved service to NNSA/NSO and the RSL.
- Finally, given the financial challenges facing the NNSA/NSO and the AOS it was important to achieve cost-savings. Several examples are discussed below.

### STAFF

Bechtel Nevada's Remote Sensing Laboratory, Aviation Operations Section was comprised of 27 aviation professionals that efficiently operated and maintained a fleet of five aircraft for the NNSA/NSO. That professional staff worked to the tenet and operational goal of being ***"Timely, Accurate, Accountable and Committed."***

The AOS employed 13 pilots with 12 holding Federal Aviation Administration (FAA) Airline Transport Pilot Ratings and 10 holding FAA Certified Flight Instructor and Flight Instructor-Instrument Ratings. The AOS was staffed with six administrative personnel responsible for overall management, day-to-day administrative support, requisitioning and receiving material, operational data entry and tracking, and mission planning. The Section employed eight FAA certificated Airframe and Power Plant Maintenance Technicians responsible for maintenance and Quality Assurance for three Beechcraft 200 Super King Air airplanes and two Bell model 412 helicopters.

### COMMUNICATIONS

The AOS initiated a bimonthly newsletter entitled *Flight Lines*. It is used to report the Section's missions and activities, highlight personal accomplishments, and provide a

means to disseminate aviation and general information. Each issue has a central topic, a safety section, procedures section, and manager's section. Everyone in the Section contributes to *Flight Lines*.

## **OPERATIONS**

### **MISSION**

The primary mission of the AOS during CY2004 was to support the National Nuclear Security Administration/Nevada Site Office (NNSA/NSO) by providing radiological airborne sensing for emergency response to a nuclear or radiological accident or incident. The mission requires that three aircraft be on standby and capable of responding within four hours of notification, 24 hours per day, 7 days per week. This support includes radiological mapping, as well as contaminated air mass tracking. An integral part of this mission is Consequence Management if an actual radiological release occurs.

More than 19,000 hours of flawless alert time was logged supporting that mission. The AOS flew a total of 862 flights and approximately 1,100 hours of accident/incident free flight time.

The flights and hours noted above supported the successful accomplishment of a variety of complex secondary missions approved by the US DOE across the continental United States. Those missions were conducted from a split-base of operations with aircraft and personnel stationed at Nellis AFB, Nevada and Andrews AFB, Maryland, a distance in excess of 2,300 miles. That accomplishment was significant in the diversity of the scope and task requirements of the missions.

The scope and the task requirements of missions ranged from no-notice deployment drills, Gamma radiation surveys, pilot and technician training flights, maintenance acceptance flights, photographic and multi-spectral/hyper-spectral scanning missions, Site Directed Research and Development projects, missions for the National Aeronautics and Space Administration and the National Laboratories, lost radiological-source searches for the US Air Force, Test and Evaluation projects, and other special project missions.

Some specific examples of missions accomplished during this period were:

- New York City - radiological survey supporting the Republican National Convention
- Sea Island, Georgia - radiological survey supporting the G8 summit
- Nevada Senator Harry Reid Homeland Security Exposition
- Operation Synergy - radiological survey supporting Federal Radiological Monitoring and Assessment Center
- Lost Source Search at Tonopah Test Range
- Project Constellation support for NA-22 special projects
- Radiological survey of Fairfax County, Virginia and Bolling AFB

Also during this period, the helicopter at RSL-A was required to be on a 24 hour, 7 day per week Emergency Response standby capable of responding to a radiological event within the National Capitol Region. This was a new mission for the helicopter crew. Two

helicopter pilots completed qualification and proficiency training for the Emergency Response mission in minimal time. A third helicopter pilot was hired during CY2004 and will complete the training early in CY2005.

## METRICS

The AOS developed a database to track Aviation Program Performance Indicators (METRICS). At all levels of Federal and BN management, metrics were considered an integral part of a strong aviation program. The AOS emphasized the importance of metrics by meeting monthly with the Aviation Managers to review and interpret the data. Results of assessments performed throughout the year by the DOE Office of Aviation Management and BN Contractor Assurance attested to the quality of the data produced by the AOS.

The following metrics were tracked by the AOS:

- Aircraft Availability Rate
- Aircraft Non-Airworthy Supply Rate
- Departure Reliability
- Excess in Inventory
- Mean Supply Response Time
- Mean Time Between Failure
- Mean Time to Repair
- Non-Airworthy Maintenance Rate
- Operations Scheduling Effectiveness
- Recurring Discrepancy Rate
- Time Left to Inspection
- Top Five Reported Discrepancies

Those metrics exhibited a commitment to excellence by the AOS management, maintenance and operations sections.

## FEDERAL AVIATION INTERACTIVE REPORTING SYSTEM

The AOS actively worked with the Federal Aviation Interactive Reporting System (FAIRS). During CY2004, the AOS established an improved project/task list to expeditiously and accurately extract the costs from the BN accounting system. The job numbers aligned with the cost categories in FAIRS and the US Government Cost Accounting Guide. That was a significant improvement that allowed the AOS to provide quarterly input into FAIRS with minimum effort.

Anticipating the change in the way flight time was to be reported, the AOS was proactive and made significant changes that included redesigning the Flight Logs to accommodate Hobbs Meter values and actual take-off and landing times. That provided an accurate source document to maintain a complete operation's data base. The data base was used to update pilot training requirements, Metrics and FAIRS.

## PERFORMANCE MEASURE

The Performance Measure for CY2004 was to have one aircraft operationally available 92% of the time and two aircraft available 83% of the time. The AOS exceeded the Performance Measure by having one aircraft available 100% of the time and two aircraft available 97% of the time.

## STOCKROOM

The AOS managed and maintained an aviation parts inventory at both sites. During CY2004, an extensive effort was taken to reduce inventory and lead to a decrease of 284 line items valued at approximately \$50,000.00. Management viewed this as a continuing effort and will carry forward the process to coming years.

The Nevada Environmental Protection Agency, BN Environmental, Safety and Health, and Industrial Hygiene Departments recognized the AOS for its outstanding management of hazardous materials (hazmat). The AOS worked closely with multiple agencies and safety professionals to ensure that all hazmat was stored in proper containers and that strict compatibility was maintained. The AOS Material Safety Data Sheets (MSDS) files were always current, accurate, and well maintained for employees to use when required. Management of MSDS's set an example worthy of emulation for the rest of the RSL.

## MAINTENANCE

### GENERAL

The maintenance staff consisted of eight FAA certified A&P Technicians with IA endorsement and collectively more than 165 years of aviation maintenance experience. The NNSA/NSO aircraft were maintained in accordance with Civil Aviation Standards of 14 Code of Federal Regulations (CFR) Parts 21, 43 and 91. The Selected Inspection Program complied with 14 CFR Part 91.409(f) (3).

### INSPECTIONS

The AOS began conducting Phased Maintenance Inspections in-house for its fleet of fixed-wing aircraft. Phases 1 thru 4 and Special Inspection Requirements were conducted in-house where as previously, those inspections and subsequent required maintenance were outsourced. A substantial cost savings (approximately \$15,000.00) per year was realized. In addition to the cost savings, that effort collaterally sharpened capabilities that were long dormant and proved to be a morale builder.

Special Inspections and Bell Helicopter Part "B" Inspection Program Requirements to include the 3,000 hour/5 year inspection were conducted in-house.

During this period, a comprehensive support and maintenance plan was developed and implemented for the Section's Ground Support Equipment. The plan provided for a comprehensive preventive maintenance process that should extend the life cycle of several key pieces of equipment.

## QUALITY ASSURANCE

Quality is the primary objective within the AOS's maintenance program. The AOS's attitude toward quality is "*Get it right the first time*" to support the Bechtel Nevada philosophy that "*All Accidents are Preventable.*" The Section's Quality Assurance (QA) professional is a FAA certified Airframe and Powerplant (A&P) Mechanic with Inspection Authorization (IA) endorsement and has 36 years experience in the aviation industry with more than 14 years in a functional quality position.

By the nature of the Section's mission, the aircraft mission equipment configuration may change multiple times on very short notice. With continual changes in mission equipment configuration, comes the potential for installation/deinstallation error. The QA professional, working closely with the Chiefs of Maintenance, developed standardized procedures and precision checklists to preclude configuration errors.

The Section's QA professional was instrumental in developing and implementing the use of a computer-based, continuous weight and balance computation program. Prior to that, the computations were required to be completed manually. The program greatly reduced the maintenance technician and flight crew time investment required prior to each flight and improved accuracy.

## TRACKING and FORECASTING

The AOS employs a custom aircraft maintenance and inspection tracking and forecasting system designed to enable the Chiefs of Maintenance to schedule maintenance events with minimum interruptions to the flight schedule. It also enables the Material Specialist to coordinate just-in-time delivery of parts and supplies required for maintenance events. That process reduces aircraft downtime and expenses involved with overnight shipping of routine maintenance items.

## EQUIPMENT UPGRADE

NNSA/NSO operated an aging fleet of aircraft. The Beech 200 airplanes averaged approximately 20 years old and the Bell 412 helicopters approached 15 years old. Management diligently worked with the NNSA/NSO Aviation Program Manager to develop an avionics upgrade package designed to enhance the safety margin when flying the primary mission of emergency response.

During CY2004, the AOS received an expanded scope of work from DOE that required an additional aircraft be placed on standby capable of responding to a radiological event in the National Capitol Region. Given the expanded scope of work, it was critical to upgrade the avionics in the helicopters. Funding was secured to purchase an ART 2000 Digital Color Weather Radar, a KMD-850 Multi-function Display, a KTA-910 Class I Terrain/Alert Collision Avoidance System and a WX-500 Stormscope. Procuring that equipment was a significant step in modernizing the aircraft cockpits and will greatly improve the safety margin when operating in an all-weather environment.

## **TRAINING**

### **GENERAL**

Supervisors identified training needs and management developed and implemented short term and long term training goals and programs. Training programs were selected to meet those needs and to contribute to the overall efficiency and effectiveness of the AOS.

### **MAINTENANCE STAFF**

To enhance the capabilities and efficiency of the maintenance staff, five Maintenance Technicians were identified for training to gain the FAA Inspection Authorization (IA) certification. All five completed the training in the minimal time and were awarded the IA certificate. This is noteworthy in that approximately fifty percent of those seeking the certification do not complete, or fail on their first attempt. The IA certification provided the Section with more operational flexibility and a much higher level of inspection expertise.

In addition to IA certification, the Maintenance Technicians attended other training e.g. Pratt and Whitney engine school, Bell Helicopter 412 Field Maintenance Course, and Raytheon B-200 Series Maintenance Course.

### **AVIATION MAINTENANCE TECHNICIAN AWARDS PROGRAM**

The intent of the AMT Awards Program is to encourage aircraft maintenance technicians and their employers to participate aggressively in available initial and recurrent maintenance training courses. The FAA recognizes eligible technicians and employers by issuing awards to those who receive or foster initial and recurrent training. The awards exemplify Bechtel Nevada's commitment of continuous training to help our technicians provide our customers and crews with the safe and reliable aircraft they have come to expect. The goal of this section is to achieve 100% maintenance training participation and line the halls of the RSL with FAA Diamond awards each and every year.

The FAA awarded AOS Maintenance Technicians with two individual Ruby Awards and three individual Gold Awards for excellence in maintenance training. That represented 100% of the AOS Maintenance Technicians. In addition, the Chief of Maintenance for RSL-N was presented with the Ruby Award.

The prestigious Diamond Award was presented to the BN AOS for excellence in maintenance training. This is significant in that the Diamond Award is rarely presented to an operator working under the provisions of 14 CFR Part 91.

### **PILOTS**

During this year, each pilot received a minimum of ten days of classroom and flight simulator training. A total of 116 hours of simulator time was used during CY2004. The training was well structured concentrating on both normal and abnormal/emergency procedures. The training was designed to enhance the pilot's capabilities to correctly and

safely react to numerous abnormal and emergency situations. Also included was Crew Resource Management training. Pilots received Instrument Proficiency Checks and Flight Reviews during this training from FAA Designated Instructors, validating our in-house training program.

## **PILOT PROFICIENCY AWARD PROGRAM**

All pilots were recognized for completing at least one phase of the FAA Wings Award Program for pilot proficiency. The phases completed ranged from Phase I to Phase V. Other training courses completed included: Know Before You Go: Navigating Today's Airspace; Runway Safety; Single Pilot IFR Operations; and Say Intentions: When You Need ATC's Help.

## **SAFETY**

### **GENERAL**

During March, the entire Section participated in a one day safety stand-down at RSL-Nellis. The objective was to help our flight crews, Maintenance Technicians and administrative personnel apply the latest expert knowledge about safety. The safety stand-down was uniquely focused on competency building with the end result being an elevated safety environment for our team. The scope was broad and about headwork – not hand-eye coordination acquired in an aircraft or at a technical school.

Guest speakers presented instruction in aviation safety culture, human factors in maintenance operations, flight physiology, communicating to improve situational awareness, home safety, decision making and stress in the workplace. The presentation and exercise for aviation safety culture presented by the BN Assistant General Manager for Environment, Safety and Health was particularly enlightening and demonstrated that the Section was progressing rapidly to a world class safety culture. Following the day's events, the Section and family members met for dinner. Special BN safety awards (Spot Awards) were presented to five individuals.

It is the policy of the AOS to provide a safe and healthful work environment and the safest possible aerial transportation for personnel and equipment supporting its vital national security mission. During this period, the AOS was recognized for the safe, accident-free operation of its helicopters by the Helicopter Association International and awarded the Operator Safety Award for the tenth year running.

To enhance the Section's safety program and further expand the safety envelope, a comprehensive safety program was developed and implemented and included in the RSL Aviation Operations Manual as a complete chapter. The safety program utilizes the principles of integrated safety management ensuring that all work is defined, hazards identified and risks mitigated and managed.

### **RISK ASSESSMENT PROCESS**

A section of the safety chapter is a procedure that defines the process used to evaluate the risk for all RSL aviation activities. The process was also designed to determine the

specific level of management required to review and approve aviation operational plans and/or work execution procedures.

The procedure provides a consistent means for Subject Matter Experts (SME) to evaluate and rank the significance of identified aviation risks. The SME determines the hazards, causes and effects of a given risk, assesses the consequences of the most credible mishap that could be caused by a specific hazard, and the probability of that mishap occurring during the planned life expectancy of the system. The procedure provides a qualitative measurement of the probability of occurrence and severity of the result from a mishap occurrence in the form of a Risk Assessment Code (RAC). The RACs are used to group individual hazards into mishap categories. Mishap risk is identified, evaluated and mitigated to a level acceptable (as defined by the system user or customer) to the appropriate authority and compliant with federal and state laws and regulations, company directives and agreements.

The procedure results in an aviation activity Risk Assessment Code that fully defines the level of aviation and ground safety review, independent aviation oversight and management approval prior to flight.

RAC risk levels are lowered by the implementation of mitigating factors. After implementation, risks and hazards are reassessed and a final RAC assigned denoting the residual risk of that hazard. The resulting mishap category is used to generate specific action such as mandatory reporting of certain hazards to management for action or formal acceptance of the mishap risk.

## FOREIGN OBJECT DAMAGE PREVENTION PROGRAM

This section of the safety chapter emphasizes the responsibility of all personnel to prevent foreign object damage (FOD). The section defines the Foreign Object Damage Prevention Program procedures to ensure good housekeeping, affect positive tool and material control, and adherence to safe work practices.

The procedures delineate the responsibilities, operational procedures, and the training and reporting requirements of the program. The program reinforces the philosophy of zero accidents and incidents by ensuring full accountability for tools and equipment and provides a means to track and trend potential FOD occurrences. Lessons learned by the tracking and trending efforts are used to improve operations and broaden the safety envelope.

## OPERATIONAL HAZARD REPORT

An Operational Hazard Report (OHR) was designed to record information about hazardous acts or conditions before incidents or accidents occur. All personnel were trained on the purpose and use of the OHR and encouraged to use the system. It was well accepted by all and was immediately used. The OHR became an integral part of the AOS's accident prevention program.



## AVIATION SAFETY OFFICERS

During this period, the Aviation Safety Officer at RSL-N completed aviation safety certification training at the University of Southern California (USC). He is a graduate of Embry Riddle University and the US Army Safety Center with a post graduate degree in Aeronautical Science and a certificate in Aviation Safety.

The Aviation Safety Officer at RSL-A attended the USC and is a graduate of the US Navy Post Graduate School with a degree in Aviation Safety.

## ***MISSION ACCOMPLISHED***